DUKE ENERGY®

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10 CFR 50.73

May 20, 2020

Serial: RA-20-0111

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: Brunswick Steam Electric Plant, Unit No. 1
Renewed Facility Operating License No. DPR-71
Docket No. 50-325
Licensee Event Report 1-2020-001

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Duke Energy Progress, LLC, is submitting the enclosed Licensee Event Report (LER). This report fulfills the requirement for a written report within sixty (60) days of a reportable occurrence.

This document contains no regulatory commitments.

Please refer any questions regarding this submittal to Ms. Sabrina Salazar, Manager – Nuclear Support Services, at (910) 832-3207.

Sincerely,

John A. Krakuszeski

SBY/sby

Enclosure: Licensee Event Report

cc (with enclosure):

Ms. Laura Dudes, NRC Regional Administrator, Region II
Mr. Andrew Hon, NRC Project Manager
Mr. Gale Smith, NRC Senior Resident Inspector
Chair - North Carolina Utilities Commission

NRC FORM 366 (04-2020)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 04/30/2020

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

1. Facility Name	2. Docket Number	3. Page
Brunswick Steam Electric Plant (BSEP), Unit 1	05000325	1 OF 3

4. Title

Manual Reactor Scram During Startup due to all Bypass Valves Fully Opening

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Year	Facility Name	Docket Number
03	22	2020	2020	- 001	- 00	05	20	2020		05000
									Facility Name	Docket Number 05000

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*			
2	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. Power Level	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
002	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ Other (Specify in Abstract below or in NRC Form 366A)	

12. Licensee Contact for this LER

Licensee Contact	Telephone Number (Include Area Code)
Sabrina Salazar, Manager – Nuclear Support Services	(910) 832-3207

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES

14. Supplemental Report Expected	15. Expected Submission Date	Month	Day	Year
☐ Yes (If yes, complete 15. Expected Submission Date) ☒ No				

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

At 12:55 Eastern Daylight Time (EDT) on March 22, 2020, with Unit 1 in Mode 2, stabilized at 2% power, during startup from a refueling outage, all four main turbine Bypass Valves (BPVs) fully opened unexpectedly. This created an unexpected reactor depressurization and cooldown which resulted in the operating crew inserting a manual reactor scram. The scram was uncomplicated and all control rods inserted as expected during the scram.

All BPVs fully opened as a result of the Turbine Control System (TCS) pressure setpoint not being set correctly. This error went undetected until the low main condenser vacuum isolation signal to the BPVs cleared during the startup sequence, at which time the BPVs fully opened.

There was no impact on the health and safety of the public or plant personnel. This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) due to manual actuation of the Reactor Protection System (RPS).

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP), Unit 1	05000325	2020	- 001	- 00

NARRATIVE

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

Background

Initial Conditions

At the time of the event, Unit 1 was in Mode 2 (i.e., Startup), at approximately 2 percent rated thermal power.

Reportability Criteria

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) because it involved actuation of a system listed in 10 CFR 50.73(a)(2)(iv)(B). Specifically, the Reactor Protection System [JC] actuated during this event.

The NRC was notified of this event per 10 CFR 50.72(b)(2)(iv)(B) via Event Notification 54597 at 16:39 Eastern Daylight Time (EDT) on March 22, 2020.

Event Description

At 12:55 EDT on March 22, 2020, with Unit 1 in Mode 2, stabilized at 2% power, during startup from a refueling outage, all four main turbine Bypass Valves (BPVs) [JI] fully opened unexpectedly. This created an unexpected reactor depressurization and cooldown which resulted in the operating crew inserting a manual reactor scram. The scram was uncomplicated and all control rods inserted as expected during the scram.

In accordance with plant procedures, the main control room closed all Main Steam Line Isolation Valves (MSIVs) [JM] to arrest the cooldown resulting from BPVs remaining open. The condensate system [SD] remained aligned for injection and pressure control was initially via main steam line drains [JM]. Residual Heat Removal (RHR) shutdown cooling [BO] was placed in operation for decay heat removal and pressure control once the MSIVs were closed. All systems responded as designed.

Event Cause

The direct cause of all Unit 1 BPVs fully opening during startup was the Turbine Control System (TCS) [JJ] pressure setpoint being set incorrectly. Procedure 0GP-01, "Prestartup Checklist," requires the pressure setpoint be set to 100 psig at this point during startup. However, at the time of this event, the pressure setpoint was incorrectly set to 1 psig. This error went undetected until the low main condenser vacuum isolation signal to the BPVs cleared during the startup sequence, at which time the BPVs fully opened.

This event resulted from a less than adequate technical review of procedure 0GP-01, "Prestartup Checklist," during development for the TCS upgrade project. In addition, there was a lack of proficiency in adjusting pressure set.

Safety Assessment

There was no adverse impact on the health and safety of the public. The safety significance of this event is minimal. The manual reactor trip was not complicated and all safety related systems operated as designed.

Corrective Actions

Upon restart from this event, the Unit 1 TCS pressure setpoint was set to 100 psig in accordance with 0GP-01, "Prestartup Checklist," utilizing the appropriate guidance from 1OP-25, "Main Steam System Operating Procedure," for adjusting the pressure setpoint. In addition, remediation plans were developed for the operators involved with this event, and lessons learned from this event were disseminated to appropriate Operations Department personnel.

On April 1, 2020, 0GP-01, "Prestartup Checklist," was revised to have specific reference to 1OP-25, "Main Steam System Operating Procedure," for adjusting the TCS pressure setpoint. In addition, the procedure step to set pressure was identified as a critical step.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
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NARRATIVE

In addition to the aforementioned completed corrective actions, the following corrective action is currently planned.

- TCS adjustment training will be provided to appropriate Operations Department personnel. This action is scheduled to be completed by July 2, 2020.

Any changes to corrective actions or completion schedules will be made in accordance with the site's corrective action program.

Previous Similar Events

No events have occurred within the past three years in which vague procedure guidance and a lack of proficiency resulted in a LER.

Commitments

No regulatory commitments are contained in this report.